UMETCO MINERALS CORPORATION
Internal Correspondence

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To: F. V.McMillen

Date: February 6, 1986

CC: H. K. Jackson
R. G. Tisch

Subject: Niagara Falls Environmental Status

Dear Frank:

On February 4th I met at Niagara Falls with Rich Miller, Craig Wentzel and his staff and reviewed the environmental areas of concern vis-a-vis the SAC/Umetco divestiture. Although the letter agreement of December 23rd with SAC does not stipulate what the arrangements might be with regard to current environmental problems, I took the approach, just as in Arkansas, that Umetco has agreed in principle to accept the liability for all environmental situations that it has created.

I will list the various areas of environmental concern and review our discussions and my thoughts:

1. The most immediate environmental concern is PCB that exists in various transformers and capacitors throughout the facility. For your information Frank, the regulations stipulate that any electrical equipment which contains oils that contain less than 50 parts per million PCBs are categorized as non-PCB equipment. Those that contain 50 to 500 ppm are referred to as PCB Contaminated Electrical Equipment and the third category, referred to as PCB Equipment, is that equipment with higher than 500 parts per million PCB in the oil. No remedial action is required for that equipment with less than 50 parts per million PCB, nor for the other two categories, as long as the equipment, i.e. transformers, capacitors, etc., is not leaking. The last two categories must be inspected upon schedules required by the EPA and if a leak or seepage is detected, then the clock starts running and within limited time periods equipment must either be retrofilled, i.e. the oils removed and replaced with non-PCB oil, or the equipment must be disposed of. In the latter case, that means removing the oil and then land filling the carcass. From a practical standpoint, if the equipment contains oils containing high amounts of PCBs, it may not be possible to retrofill them, whereas the gaskets and other materials within the equipment may absorb and hold sufficient PCBs so that when refilled, the oil would simply be recontaminated. When you retrofill, it is required that after three months of operation, the equipment must again be sampled to ensure that it is non-PCB.

The Niagara plant has made a survey amd sampled all known electrical equipment that they believe might contain PCBs. Where they have found contaminated equipment they have made correction recommendations. I have reviewed those recommendations and inspected the various equipment and I concur with their recommendations. Seven relatively large transformers can probably be successfully retrofilled, which would be the most economic route. Those are transformers 33, 34, 35, 110, 111, 21 and 22. The estimated cost of retrofilling and disposing of the PCB contaminated oil, which must be burned by a qualified disposal firm, is approximately $60M. Firm quotes are currently being obtained and it will probably require three to four months to complete, plus a three month running period to retest the transformers. A second group of transformers, numbers 4, 23, 24, 122, and 161, are no longer required and in some cases are highly contaminated with PCBs. It is recommended that they be disposed of. We do not have a recent quote on the costs of performing that disposal, but it is estimated to be in the vicinity of $90M. It would also require three to six months to complete disposal and again, the plant is obtaining firm quotes. There are two relatively small transformers; no. 119 and 143, which would be cheaper to dispose of and replace at a total estimated cost of $2M.

There are 113 PCB capacitors that are no longer required and again, we are obtaining firm quotes for disposal. I would guess the cost could be in the $15M to $20M range. There are three medium sized capacitors in storage, plus twenty smaller PCB capacitors in the control cubicles for the shaft furnace. These capacitors are in acceptable storage and there is no evidence of leakage so I see no reason to either dispose of them or replace them. If SAC plans to use the shaft furnace, they may want larger capacitors since, as you will recall, these are underpowered.

There are three PCB transformers on the roof of 94 building and, as you probably recall, our Legal Department advised us that those are the responsibility of Elkem. The plant has been inspecting and maintaining them and is on record with the Niagara Falls Fire Department as performing those functions. I will ask our Legal Department to advise Elkem in writing that we will no longer perform that maintainance and that those transformers are their responsibility.

Beyond the electrical equipment, the plant has also accumulated seven drums of waste and sludge from clean up of PCB that has leaked from transformers and there will probably be another thirty or so drums that will accumulate from clean up when the above described equipment is either removed or retrofilled. It will be necessary to dispose of that material by a qualified agent. The estimated cost for that is $15M to $20M.

Three of the above transformers already discussed are sitting outside and are known to have leaked. That leakage could possibly have contaminated a fair amount of soil and it will be necessary to sample that soil and if contaminated, remove and drum it, and dispose of it. There could be as much as ten or twenty barrels and the approximate disposal costs are $300 to $500 per barrel.

The main switching station at Niagara Falls has been the responsibility of Umetco and it is now to be transferred to Linde. That station contains 1,008 PCB capacitors, all of which are sealed, are carefully enclosed, and none have ever been known to leak, nor are there any leaking now. I understand that Linde has already indicated that they would like to see those removed and replaced and have obtained an estimate for removal and disposal of $250M. Our own estimate is less, i.e. $150M. We have no quotes on the reinstallation and replacement costs but I suspect the total cost would be in excess of half a million dollars. There is no legal requirement as long as there are no leaks and as long as the proper inspections are made to replace those capacitors. It makes absolutely no sense to me from the standpoint of Union Carbide's exposure, etc., to replace them at this time, and there may never be a need to.

The only area regarding PCBs that is undefined at Niagara involves the many oil filled switches around the plant. No testing has ever been done. The plant will randomly sample some of the oil fill switches in the near future and have PCB assays run. Hopefully, we will find none and, that being the case, there will be no problem there.

The approximate cost of all of the actions listed above is something in the order of $200M to $250M, not counting the main switching station, for clean up of the PCB situation.

2. The second most critical environmental item is the discharge from the halide cylinder dumping and cleaning operations that we have discussed before. There has been an air discharge of HCl and chlorine gas and a liquid discharge into the Elkem sewer. On occasion, low Phs occur due to HCl and there is also some vanadium. The Engineering group and the plant has designed and tested a new fume control scrubbing system, which is in the process of being installed, to control and correct those problems. This involves a new venturi scrubber and a high pressure blower to collect the fumes and scrub them so that only clean air is discharged and so that the liquid can be released in a controlled fashion. The current schedule is to complete the installation of that facility by the end of April. Tests have shown that the system should collect from 95% to 97% of the particulate fumes which should be acceptable. When complete it will be necessary to obtain an air discharge permit from the

DEC, which should be no problem, except they may ask why we have not obtained that permit heretofore. It may also be necessary to obtain a water permit, unless we are covered under permits held by Elkem. Craig Wentzel and Don Hansen will attempt to find the answer to the latter question.

I'm sure you appreciate that as we proceed to obtain permits, the discussions we have had in the past with Elkem with regard to discharging into their sewer may arise again. An estimate has been made to install a new sewer extension, so that the discharge would go into our own sewers of about $35M. There is no environmental reason to do so and the new scrubber should alleviate Elkem's previous concerns.

3. Chrome Oxide - There are about 64 drums of a chrome oxide material at Niagara which came from the Strasbourg facility. At this time, there is no obvious home for this. It does classify as a hazardous waste and the quickest and simplest way to resolve the problem would be to have it buried as a hazardous waste. We obtained an estimate of $6M to $7M to do that.

4. There is 78M pounds at Niagara of a high antimony tungsten moly oxide material, which resulted as a part of the Bishop problem some time in the past. There have been efforts to market this unsuccessfully through Investment Recovery and by George Lincoln. This material, unfortunately, is in paper bags, which are beginning to break open. It does classify as a hazardous waste and to dispose of it would require repackaging the material into steel drums and disposal by a qualified agent. Perhaps the material is marketable but if not the disposal would probably cost about $30M.

5. You should be aware, Frank, that there is a collapsed, buried sewer on our property, which was filled many years ago with some kind of a crushed fly ash or slag. We understand it is leaking into the Elkem sewer and the city may be giving Elkem some problems. The source of the leakage is not from us. We understand it is material coming from Hooker's property which is passing through and under this crushed filled sewer, which is merely providing a route to Elkem's sewer. No action is required on this.

6. The freight elevator in the globar area, at some time in the past, was lined with asbestos for "fire protection?" Due to a leak in the roof a few months ago, some fell off, dropped down through the elevator shaft and contaminated the area. The plant had to bring in people to clean it up and since it represents an environmental hazard an estimate has been obtained for an outside firm to remove the asbestos and get rid of it. The cost estimate was $12M, and probably should be done. As far as other asbestos throughout the plant, over the last year or so the plant has encapsulated or removed most of the asbestos pipe

insulation throughout the plant. They believe they have corrected over 95% of that problem. There is some asbestos stored in the plant that needs to be disposed of at a minimal cost.

7. Twice a year, an outside firm, referred as Super Sucker, comes in and vacuums all of the crane rails, etc.. The dust is collected as a sludge which is dumped in the yard. It is scattered over a relatively wide area and no testing has ever been done to determine whether this material qualifies as a hazardous waste. The plant will sample the material and if it is a hazardous waste, an inventory will be taken. To dispose of the material it would have to be drummed and disposed of at a cost of $200 to $300 per drum. I have no firm feel for the quantity of this material, but there could be over a hundred drums.

8. There are in storage in the globar area thousands of small coffee cans, which represent samples of material that have been made at Niagara Falls since 1906. No one knows what is in these cans; whether they are "hazardous waste", radioactive, etc. A program has been started with plant people in their spare time to open each and every can, identify it, categorize it, and separate it for disposal. At the current rate this is proceeding, it probably won't be completed for well over a year. I have recommended that we get an outside firm to quote on coming in and doing that work so that it could be wrapped up and completed in a reasonable time. I would estimate we are talking in the order of $10M to $15M for that task.

9. We talked about numerous other small piles of miscellaneous materials lying around, i.e. lime, etc., and there are no other significant items at issue. However, there is about 20M pounds of moly vanadium aluminum remelts, which is not a hazardous material, but it is the plant's position that they should be written off to the account of Umetco. Perhaps at some stage it may be necessary to landfill them.

There is some concern that there might be material lying around from ancient history that could be thorium bearing and thus radioactive, such as the material we cleaned up in the yard last year. I believe it would be better to determine if there is any potential problem now and have asked Don Hansen to conduct a radiation survey throughout the plant and yard to see if anything crops up. If we find nothing from a surface radiation survey, that should alleviate all concerns.

10. There is a pile in the yard of approximately 4M tons of slag that has come from the various furnacing operations. That slag is currently being sold under contract to Federal Cement Company, who is purchasing the material for $12.00 per ton. The rate at which they are purchasing is at about the rate that it

is being produced. However, they have shown a strong interest in purchasing all of the material in due course. This material is not hazardous and I do not view it as any liability for Umetco.

11. There are some empty drums scattered around the plant but those can be used by SAC or disposed of, if necessary, by simply washing them out. I view this as no environmental liability.

12. The plant was advised by a Union Carbide Security inspection that it may be advisable to erect a fence between what will be the SAC facilities and the L-Tech facilities. That fence would go across the yard and across where all the various and sundry piles of slag, etc., are and would also go right across the middle of a large pond called Lake Linde. The plant is obtaining an estimate for this fence. Not only will the fence be expensive, it will be extremely difficult to install due to the lake. I do not consider this item an environmental matter and would question that the fence is really needed for security. The fence would be approximately 1500 feet long, would need to be chain length, and, as I say, will not be cheap.

13. Frank, the Lake Linde area that I referred to above and the general yard area, although not representing any immediate environmental probem, does raise some concerns. There have been many different types of materials dumped out there for 60 or 70 years. No one knows whether any of the materials have been leachable, whether they have in any way contaminated the soil, and if so, to what depth, or if there could be any potential ground water contamination. As we dump and identify the contents of the sample cans, we should get some guidance as to what might be out there. Lake Linde has collected drainage from the area and L-Tech is discharging into it and no one really knows the characteristic of that water. The concern I have is that when Umetco no longer has any control over the property, the lessees, i.e. L-Tech, SAC, etc., could dump or discharge in the area, creating environmental problems and a liability for UCC. Ideally, it would be good to go in and sample the area; maybe even by drilling, and establish a base for UCC's liability at this time. The radiation survey will help there. The only danger of this is that with all of the industrial contamination that is either known or suspected in that vast industrial area, we could find something that would open up a real Pandora's box, and so I, therefore, hesitate to recommend that course of action. I suggest we should discuss this particular issue further and perhaps in depth with legal counsel.

14. When the property to the north of our current facility was sold to Niacet, Union Carbide retained ownership of three large boilers and the building and associated equipment contained therein. Prior to 1980 or '81, the boilers were operated to provide steam for our facility. I do not know exactly the legal

situation, i.e. who's responsibility they are, but Umetco has been the UCC manager and, in any event, they are still owned by Union Carbide. The Niacet individual who showed me around is aware of that. He pointed out that the supports on two huge stacks on the top of the building are failing and if the stacks are not resupported or removed, they will fall down. The boilers themselves have asbestos insulation on the external piping and they may have asbestos insulation internally throughout the boilers. I have asked the fellows at Niagara to try and find drawings so that we can determine how severe the asbestos problem is. If we are legally responsible for these boilers, it may be necessary to either remove the asbestos, certainly to either support the stacks or tear them down, and possibly demolish the boilers. These are large units and the costs would be significant. I will ask our Legal Department to give me an opinion as to what our responsibilities are. This issue does not involve SAC except perhaps for a service agreement but may have to be resolved before Umetco can withdraw from Niagara Falls.

15. Under the agreement with SAC, Carbide has said that they will share the final and eventual reclamation costs of the site, if and when it is ever abandoned. To fix that liability now, we could get a demolition contractor to make an estimate now of demolishing and reclaiming the facility. However, the logical final solution would probably be to clean out and scrap the equipment and sell the buildings at that time. If the parties agree to resolve Items 1 through 14, I suggest the final buildings reclamation be left and the cost or credit be shared based on relative time of occupancy.

16. Miscellaneous - We touched on numerous other minor areas, such as underground tanks, and there are no problems there. We talked about bulk storage and although initially there appeared to be a caustic tank problem, it was tested and checked out okay. We talked about the 86 or so vanadium halide tanks scattered around the country, and they seem to be under control and all in good condition. There is no major waste oil problem, etc. There are no radiation sources on the site. I believe, Frank, that if the situations described in this memo are addressed, we can fairly well define the environmental liabilities of Union Carbide at Niagara Falls.

Very truly yours,

D. G. MILLENBRUCH

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